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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,244	09/25/2006	Akio Sekimoto	295770US40X PCT	2189

22850 7590 08/27/2009
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

CHACKO DAVIS, DABORAH

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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08/27/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/594,244	Applicant(s) SEKIMOTO ET AL.	
	Examiner DABORAH CHACKO DAVIS	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 10, 11 and 13-21 is/are rejected.
- 7) ☒ Claim(s) 5, 7-9, 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6,10-11, and 13-21, are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 5,254,435 (Grandmont et al., hereinafter referred to as Grandmont) in view of U. S. Patent No. 6,329,123 (Lundy et al., hereinafter referred to as Lundy).

Grandmont, in the abstract, in col 3, lines 1-62, in col 5, lines 5-45, in col 6, lines 18-68, in col 7, lines 1-34, in col 8, lines 1-67, discloses forming a solder mask by providing means (in a system) for forming a photosensitive strippable film (carrier film) on one side of a resist layer (resist layer formed by a coater that coats a surface with a resist layer or photoimageable ink layer) (dielectric layer), drying the resist layer (dielectric film in a heating unit i.e., a dryer), laminating the resist layer (dielectric layer, laminating done by a laminating device) to a substrate (with a circuit pattern), and exposing the resist layer (in an exposing unit) through an insitu mask through the strippable film to form an exposed resist layer, removing the strippable film (i.e., carrier film removed by a remover, cover sheet, or release paper, or laser drilling through holes), developing the exposed resist, followed by heating (curing in a curing unit) to form a solder mask on the substrate or electroplating the through holes with conductive

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material to form a circuit pattern (tin-clad copper pattern) (claims 1, 18-19, and 21).

Grandmont, in col 5, lines 7-8, discloses that the resist layer is formed in a continuous form (reference 24 of figure 1A) (claim 2). Grandmont, in col 6, lines 63-68, and in col 7, lines 1-11, discloses that the photoimageable layer has a plurality of separate portions (see figures 5B through 5C). Grandmont, in col 9, lines 58-68, in col 10, lines 1-4, and in figures 17C through 17E, discloses that the upper side of the resist is in contact with the substrate prior to lamination (claims 3-4, 6). Grandmont, in col 5, lines 12-19, discloses that interposing the substrate to the resist layer portions includes hot roll laminating the resist and cover film sheet to form a composite structure, followed by roll lamination of the composite structure and the substrate to form a resist coated substrate (claims 10-11). Grandmont, in col 1, lines 25-27, and lines 34-35, and in col 2, lines 67-68, discloses that the substrate can be either a board structure (flexible printed wiring or circuit board) or a rigid printed circuit board (copper foil clad epoxy fiberglass substrate) (claims 13-16, and 20). Grandmont, in col 1, lines 34-35, in col 6, lines 65-68, in col 7, lines 25-33, discloses that substrate is a dielectric layer provided with a circuit pattern (see figure 5F) (claim 17).

The difference between the claims and Grandmont is that Grandmont does not disclose that the resist layer (photoimageable layer) is formed by coating a liquid photoimageable ink on the carrier surface and then drying the liquid photoimageable ink layer to form the photoimageable resist layer.

Lundy, in col 10, lines 23-34, discloses that the photoimageable composition can be applied to the support sheet as a liquid composition and then subjected to drying

process to form a dried film on the sheet (carrier surface).

Therefore, it would be obvious to a skilled artisan to modify Grandmont by employing the process of applying a photoimageable composition in its liquid form as suggested by Lundy because Lundy, in col 10, lines 23-35, discloses that the photoimageable layer can be either a dry film or formed by applying a liquid photoimageable composition on the surface to be coated, and then dried to form the claimed film.

Allowable Subject Matter

3. Claims 5, 7-9, and 12, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 5, 7-9, are allowable over the prior art of record (U. S. Patent No. 5,254,435 (Grandmont et al), and U. S. Patent No. 6,329,123 (Lundy et al., hereinafter referred to as Lundy)) because the prior art does not teach cutting the photoimageable resist layer into a plurality of resist layer film bearing portions prior to lamination of the resist layer to the one side of the substrate, and the prior art does not disclose folding into two a leading edge portion of the photoimageable resist layer bearing film to form a sandwich of the substrate between the photoimageable resist layer portions prior to the lamination of the resist layer to the substrate. Claim 12, is allowable over the prior art of record (U. S. Patent No. 5,254,435 (Grandmont et al), and U. S. Patent No. 6,329,123 (Lundy et al., hereinafter referred to as Lundy)).

Response to Arguments

5. Applicant's arguments, see Remarks, filed May 29, 2009, with respect to the rejection(s) of claim(s) 1-4, 6, 10-11,13-21 under 35 U. S. C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Lundy. See paragraph no. 2, above.

A) Applicants argue that Grandmont does not disclose that the photoimageable layer is formed by coating a liquid photoimageable ink on the carrier and then drying the liquid photoimageable ink to form the photoimageable resist layer.

Grandmont is not depended upon to disclose the formation of a liquid photoimageable composition on the surface-to-be-coated, and then later dried. Lundy, as discussed in paragraph no. 2, above, teaches forming a photoimageable film by coating a liquid photoimageable composition on a sheet surface and then drying the liquid composition to form the photoimageable layer.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daborah Chacko-Davis/
Examiner, Art Unit 1795

August 16, 2009.